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; File : adctrig.asm

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; Description : Flash led an initial rate of 100ms

; Pressing INTO triggers single conversion

; The ADC result is written to internal memory

; The delay rate is increased

; The program waits for the next INTO to repeat the

; above sequence

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$MOD832 ; Use ADuC832 predefined Symbols

FLAG EQU 00H ; Define Bit

CHAN EQU 00H

DSEG

ORG 0030H

LENGTH EQU 40

BUFFER: DS LENGTH

CSEG ; Defines the following as a segment of code

ORG 0000H ; Load Code at '0'

JMP MAIN ; Jump to MAIN

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ORG 0003h ; (INT0 ISR)

MOV B,A ; Copy A (sets delay)

INC A ; Increment delay

SETB SCONV ; INITIATE A MAIN ADC SINGLE CONVERSION

JNB ADCI,$ ; Wait for conversion results

; Write ADC Result to memory

MOV @R0,ADCDATAH

INC R0

MOV @R0,ADCDATAL

INC R0

MOV A,B ; Restore A (sets delay)

INC A ; Increment delay

RETI ; Return from Interrupt

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ORG 004Bh ; Subroutines

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DELAY: ; Delays by 100ms \* A

MOV R3,A ; Acc holds delay variable

DLY0: MOV R1,#022h ; Set up delay loop0

DLY1: MOV R2,#0FFh ; Set up delay loop1

DJNZ R2,$ ; Dec R2 & Jump here until R2 is 0

DJNZ R1,DLY1 ; Dec R1 & Jump DLY1 until R1 is 0

DJNZ R3,DLY0 ; Dec R0 & Jump DLY0 until R3 is 0

RET ; Return from subroutine

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MAIN: ; (main program)

; Configure ADC

MOV ADCCON1,#0B0h ; power up ADC

MOV ADCCON2,#CHAN ; select channel to convert

MOV R0,#BUFFER

SETB IT0 ; INT0 edge triggered

SETB EA ; enable inturrupts

SETB EX0 ; enable INT0

MOV A,#01H ; Initialize A -> 1

BLINK: CPL P3.4 ; blink LED using compliment instruction

CALL DELAY ; Jump to subroutine DELAY

JMP BLINK ; If FLAG is still cleared the jump to Blink

END